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Newsletter of the Idaho Native Plant Society • Promoting Interest in Idaho's Native Flora

Finding the Picabo Milkvetch—A Rare Idaho Endemic

By Samuel DeGrey, Loasa Chapter President

When driving along US-Highway 26 between Shoshone and Carey, very few are aware that this route passes through the middle of the range of one of Idaho's rarest plant species. The Picabo milkvetch (*Astragalus oniciformis* Barneby) is only found on sandy soils in parts of Lincoln, Minidoka, and Blaine counties in south-central Idaho, and nowhere else. Named for the small town of Picabo (pronounced "pikaboo"), this plant is listed as occurring "in the foothills of the Sawtooth mountains and adjacent Snake River Plain" in *A Flora of the Pacific Northwest*. Most populations occur in relatively flat lava-desert, well away from the margins of the mountains, nowhere near what we typically call the Sawtooths. (We may assume that the Sawtooths actually refer to the Pioneer Mountains, which include the Sawtooths.) Given the specific soil requirements of the plant, its effective distribution is even smaller than its already small range would indicate. The species is thought to be declining throughout its range.

I had been interested in the milkvetch since moving to the Magic Valley area. I decided to organize an INPS outing to try to see the rare plant while it was in bloom. We, of the Loasa Chapter, joined forces with the Wood River Chapter, a perfect collaboration given the milkvetch's range straddles the border of our two regions. Meeting up in the town of Picabo, we caravaned to an obscure patch of BLM land sandwiched between ranches and agricultural fields. Rolling down a bumpy rocky road, we set out on a long drive to a known locality for the milkvetch.

As we continued down the two-track, we began to notice the soil becoming increasingly sandy, almost sand-dune or beach-like, but well-covered with vegetation. Eventually we reached the location of our first known population. We hopped out of the car and fanned out in search of the milkvetch. The area was well choked out with invasives, especially pepperweeds, and signs of trample by livestock and other ungulates abounded. We hardly saw any blooming plants, and no milkvetches of any kind—unusual given the Picabo desert area typically abounds with many species. Demoralized, I was about ready to call everyone to head out to the next spot, when suddenly I noticed something. It was a tiny, greyish-green compound leaf poking out from under some grass. I stooped down to look. Could it be? There was indeed a small milkvetch poking its way through the weeds.

The Picabo milkvetch can be distinguished from other milkvetches in the immediate Picabo desert area by the combination of the following characteristics: relatively small size, greyish-green leaflets that tend to be folded over the midline, the jointed apical leaflet (which distinguishes it

...Continued on Page 3

In this issue:

Finding the Picabo Milkvetch....1
Letter from the President....2
2024 Intermountain Botanical Foray....4
Society Announcements....4
2024 INPS Scholarship Awardees....5
Local Partnership Helps Rare Aquatic Plant....6
Desert Moss Ecology and Identification....8
Rays and Disks-The Asteraceae Family in Idaho..10
Pahove Chapter Spring Wildflower Walks....14
Pahove Chapter's Earth Day Celebration....15
Pahove Chapter's 6th Annual Wildflower+ Show . 16
Pahove Chapter's Annual Native Plant Sale....17
Chapter News....18
Exploring the Plants of Craters of the Moon....19

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Letter from the President

Idaho's native flora contains somewhere in the neighborhood of 2800 vascular plant species. Everything from minute aquatic species such as water-meal and duckweed that may be only 0.04 inch or so in size, to giant western red cedars in northern Idaho that can exceed 170 feet in height. An assortment of environmental conditions and associated habitats contribute to Idaho's diverse flora, including an elevation gradient spanning nearly 12,000 feet from the summit of Mount Borah to the mouth of the Clearwater River at Lewiston, geology that varies from ancient marine sediments to recent lava deposits, and annual precipitation that ranges from approximately 7 inches/year at Grand View to 40 inches at Wallace. It should therefore not be a surprise there is no shortage of great places to enjoy Idaho's wildflower diversity. In the early spring, Hells Canyon is tough to beat. The Owyhee high desert can be a rainbow of colors later in the spring; as can hidden washes and basins in the Challis country, or the lava landscape of Craters of the Moon. Late spring is also a choice time for the Basin and Range valleys in east-central Idaho. Early summer provides wildflowers galore in the Clearwater and other north Idaho forests. High mountains defining the central part of the state all the way to the Panhandle wait until mid-summer before reaching full glory. Mountain meadows, deep forests, juniper woodlands, canyon grasslands, sagebrush plains, peatlands–Idaho has them all.

Idaho Native Plant Society members are especially appreciative of the state's floristic richness. The Society's mission entails sharing this appreciation and in doing so increasing the population of people who understand the values of native plants and are willing to promote their conservation. As an all-volunteer organization, INPS depends on its membership to meet this mission. Volunteer opportunities abound, whether it is assisting on a native plant habitat restoration project or other chapter-sponsored events such as a native plant sale, or having a native plant information table at a community event. A new volunteer opportunity is outlined in this newsletter (see page 4). I would greatly appreciate it if an INPS member could help with this Information Technology (IT) need. More fully utilizing CIVICRM (software used by INPS) capabilities will improve the efficiency of routine tasks needed to run our organization and allow better communication to the membership, among other things. I am also looking for one or two volunteers to be part of the INPS Scholarship Committee. Main responsibilities will include getting the word out about the scholarship program to all Idaho colleges and universities and reviewing scholarship applications. Please contact me if you are interested in assisting with either of these needs (president@ idahonativeplants.org).

As always, if you have any questions or concerns about INPS, please reach out to me.

Enjoy the summer season.

Michael Mancuso
INPS President

Picabo Milkvetch *Continued from Page 1...*

from another local endemic—*Astragalus atratus* var. *inseptus*, the Fairfield milkvetch), free stipules, basifixed pubescence, and the small, cream-colored flowers. After running through these characteristics, I declared that we had found the Picabo milkvetch! However, I was dismayed, as we were only able to find a couple in a tiny area. Was this milkvetch population becoming extirpated already?

The author examining a Picabo milkvetch. Photo by Lisa Horton.

We headed back to the two-track, spirits higher, and decided to head down to the next locality. Before we could hop back in our cars, someone yelled out "I found one...and another!" We all stopped and began searching around; soon we were picking out milkvetches everywhere! They were so small and inconspicuous, we had walked right past them. We quickly found around 20 milkvetches by the two-track, where they seemed to be more abundant. Heading down the road, we bumped and ground through sand and lava until we found the next site—adjacent to a watering hole surrounded by a large herd of cattle giving us the evil eye. Surely there would be none in this heavily disturbed site?

Over 100 Picabo milkvetch sightings later, we were quickly proven wrong. They seemed to be thriving around the cattle wallow, and once again seemed to be more abundant near the road. Upland lava ridges yielded little to no milkvetches. Once again, no other species of *Astragalus* were seen—except one possible sighting of a woollypod milkvetch (*Astragalus purshii*), normally ubiquitous across southern Idaho. Satisfied, our party set back down the road, on the way home. My car was the last in line and I was surprised to see Wood River Chapter members standing around the fence which led out of the BLM land. I hopped out and as it turns out they had counted over 100 Picabo milkvetch, right there at the entrance from the main road! Once again, the bizarre little plant seemed to be thriving in a highly disturbed spot, which we had originally passed right over.

If Picabo milkvetch thrives with so much with disturbance, then why is it rare and declining? There are a variety of possible reasons. Some of the milkvetch's pollinators may also be rare and possibly declining, for one. We should not take the plant's continued existence for granted, even if it appears to be locally thriving.

The Picabo milkvetch is not alone—its closest relative is also a rare, threatened, Snake River Plain endemic. Mulford's milkvetch (*Astragalus mulfordiae*) is endemic to the Owyhee Front, Treasure Valley, and Weiser areas in southwestern Idaho and adjacent eastern Oregon, and is similar in habitat and appearance to Picabo milkvetch. The two species can be distinguished by generally upright stems and connate stipules for Mulford's milkvetch, compared to more prostrate stems and free stipules for Picabo milkvetch. More easily though, the two can be distinguished by the fact that they have no known range overlap.

Thank you to the Wood River Chapter for joining us on the trip, and to Samantha Seabrook-Sturgis for providing helpful advice about the Picabo milkvetch. •

Vegetative habitat of the Picabo Milkvetch. Photo by Lisa Horton.

Picabo milkvetch with flowers. Photo by Lisa Horton.

Mulford's milkvetch, the Picabo milkvetch's closest relative. Photo by Richard Rachman.

The search party completely surrounded by Picabo milkvetch. Photo by Kristen Fletcher.

Announcements

2024 Intermountain Botanical Foray

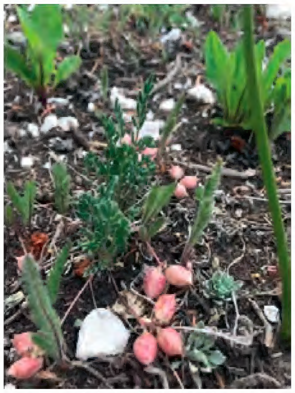
By Julia Hobbie, PhD Graduate Student, Utah State University

You are invited to participate in the Intermountain Botanical Foray! The Foray is an annual event organized by the Intermountain Herbarium at Utah State University and regional partners. Each year botanists of all stripes spend a long weekend at a different botanical hotspot in the Intermountain Region to intensively collect and identify plants, document biodiversity, and generally nerd out in all manners plant-related.

Foray 2024 is co-hosted by Snow College, and will take place from July 11–July 15 at the Great Basin Station in Ephraim, Utah! Thank you to our partners at Snow College and the Forest Service for helping make this possible, and for the support of the Utah Native Plant Society.

The historic Great Basin Station is located in Ephraim Canyon in the Wasatch Plateau area of the Manti-La Sal National Forest. We are looking forward to exploring the aspen-conifer forests and subalpine meadows of this area—it will be a stark contrast to last year's high desert ecosystem! We hope to see some neat endemics such as *Astragalus montii* and *Eriogonum brevicaule* var. *caelitum* (pictured).

The Great Basin Station has a kitchen, bunks, and a classroom gathering area. Participants will be responsible for bringing their own bedding and food, while the organizers will take care of permitting and providing collecting supplies and instruction. Thursday and Monday will primarily be travel days. On Friday, Saturday, and Sunday we will survey different areas of botanical interest, and each evening we will spend time identifying and pressing our specimens, intermixed with some botanical and cultural presentations. This will be a wonderful opportunity for those interested in botany to learn from experts and each other, as well as to explore this interesting locality.



Astragalus montii. Photo by Kris Valles.

Eriogonum brevicaule var. *caelitum*. Photo by Kris Valles.

We would love for you to join us! You can sign up to attend the Foray at https://forms.gle/jEHgB8Kpi2KDj1oc6. Please email julia.hobbie@usu.edu with any questions or to get on the email list for next year. And please spread the word to interested friends/colleagues! •

Happy botanizing!

Julia Hobbie, Carl Rothfels, and the Foray Crew

Society Announcements

INPS Volunteer Opportunities

If one or more of our members has experience using CIVICRM or WordPress and would be able to help expand our use of the systems, we would appreciate your assistance as a member volunteer. CIVICRM is a web-based software for constituent management. INPS primarily uses it to store data about our contacts, memberships, and contributions. We would like to expand our use of additional features—particularly in scheduling automated report delivery to our chapter presidents and officers, in INPS event management and in direct communications with our members. CIVICRM is integrated with WordPress and the WordPress dashboard is how we interact with CIVICRM.

We are also looking for one or two volunteers to be part of the INPS Scholarship Committee. Main responsibilities will include getting the word out about the scholarship program to all Idaho colleges and universities and reviewing scholarship applications. Please contact INPS President Michael Mancuso (president@idahonativeplants.org) if you are interested in assisting with either of these needs. •

2024 ERIG Program Recipients

- Idaho Botanical Garden, Daniel Murphy: *Eriogonum Collection at Idaho Botanical Garden*
- Mighty Monarch Conservation Group, Perky Smith-Hagadone: *Native Milkweed Perpetual Propagation*
- Rachel R. Renne, Yale School of the Environment: *Investigating Perennial Forb Microsites in Big Sagebrush Ecosystems*

2024 INPS Scholarship Awardees

By INPS Scholarship Committee (Liz Martin, Penny Morgan, Paul Ries, Bill Bridges)

The INPS Scholarship Committee has selected this year's two $2,000 awardees, one graduate student and one undergraduate student. Congratulations to Erika Stewart and Elizabeth Mandala! There were 26 applicants this year, including 7 graduate students, and 19 undergraduate students. Each applicant received a free 1-year membership in INPS. This is the second year we have granted scholarships. As members of the committee, Liz Martin (chair), Penny Morgan, Paul Ries, and Bill Bridges, we are pleased that the outreach about the scholarships helps people across Idaho learn more about INPS.

Erika Stewart

Erika is a PhD student at Idaho State University (ISU). She says her interest in native plants started in second grade when she remembered learning about milkweed and its relationship with monarch butterflies. Her interest continued to grow in high school as she collected sagebrush seed with BLM for fire restoration and she planted willow, dogwood and other riparian plants with Idaho Department of Fish and Game. After high school, Erika received her bachelor's degree in environmental science at the University of Idaho. Her senior thesis focused on using native plants on campus. After graduation, she spent several years working as a field technician and crew lead doing rare plant surveys, riparian restoration work, and fire recovery monitoring. She never had a botany course, so she had to teach herself how to key plants and identify them.

After several years as a field technician, Erika's love of plants led her to graduate school. As a PhD student, she is doing research for the Idaho Transportation Department to identify roadside restoration methods that simultaneously reduce weed invasion and fire hazard while enhancing pollinator diversity, habitat, and abundance. Erika's advisor describes her as a leader, mentor, and advocate for both undergraduate and graduate students. She currently volunteers as President of Idaho State University's Biology Graduate Student Association and recently served as the graduate representative on the ISU Biology Department's Tenure and Promotion Committee. She also volunteers hosting summer camps for kids.

Elizabeth Mandala

Elizabeth is in her senior year studying biology, ecology and conservation at Idaho State University (ISU). She says, "Since taking my first plant identification class at Idaho State University in 2021, I have been hooked like a cocklebur on a thick woolen sock." She joined the Idaho Native Plant Society in 2022 and keys plants in the Ray J. Davis Herbarium every Friday. Motivated by a desire to engage students and community members with activities cultivating plant appreciation she founded the ISU Botany Club and currently serves as its president. The club is now an official student chapter of the Botanical Society of America. Elizabeth is also vice chair of the High Desert Chapter of Idaho Master Naturalists. Her advisor describes her as a leader and says as a non-traditional student she provides a mature, calming, and competent presence for other students.

Since returning to college in 2021, Elizabeth has worked as a research assistant helping several different graduate students with their master's projects. Following graduation, she will continue research from her senior thesis that she expects will culminate in writing a flora of southeastern Idaho for her master's thesis. She intends to use her scholarship award to enroll this summer in ISU's Field Botany course to provide a better foundation for her to contribute to the Idaho Botanical Foray that will be hosted by ISU in June.

Please encourage students you know to apply next year. For more information, including the criteria used to select the best candidates, please visit the INPS website at https://idahonativeplants.org/scholarship-news/. We welcome your comments and questions at INPSScholarship@gmail.com. We also welcome an additional member, or two, to our scholarship committee. You can contact any member of the committee, or email INPSScholarship@gmail.com.

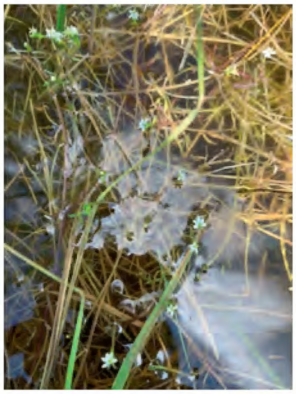
If you wish to donate to future INPS scholarships, you may do so using PayPal at https://idahonativeplants.org/scholarship-news/. You can also mail a check to INPS stating your desire for your donation go towards the scholarship program. Your donations will help us continue to offer scholarships well into the future. We thank Mike Mancuso and the INPS board for establishing the scholarship program in 2023, and for funding two awards and the INPS membership given to all the students who applied each year. We also thank all the applicants and those who wrote recommendation letters for them—we welcome you all to be active in INPS. •

Rare Plant Spotlight

Local Partnership Helps Move Rare Aquatic Plant Toward Recovery

By Brenda Erhardt, Latah Soil and Water Conservation District, White Pine Chapter

Back in 2011, landowners Leona and Jason Svancara recognized the presence of water howellia (*Howellia aquatilis*) on their property in Princeton, Idahoand requested the assistance of agency partners to learn more about this unassuming aquatic plant. The unique plant also turned out to be really rare. Water howellia also occurs in California, Washington, Oregon, and Montana.



Water howelia. Photo by Lauren McCleary.

Water howellia was listed as Threatened under the Endangered Species Act in 1994 because of threats from timber harvest, weed encroachment, development, and grazing. Because of this listing, partners have been working throughout the species' range to reduce the threats. Water howellia was delisted in 2021 following recovery progress, but the status change did not stop these dedicated land stewards from continuing to work to protect this unusual and rare plant.

Idaho has approximately six known water howellia populations (Lichthardt and Pekas 2019), one of which occurs in Princeton, Idaho, in oxbow ponds in the floodplain of the Palouse River. Even though water howellia was delisted, threats to Idaho's small number of populations are ongoing. One significant threat to water howellia habitat, including the Princeton location, is encroachment by invasive weeds such as reed canarygrass (*Phalaris arundinacea*).

Partners work together to restore rare plants

The landowners teamed up with the Idaho Natural Heritage Program (INHP) and U.S Fish and Wildlife Service (USFWS) in 2012 in support of water howellia monitoring on seven ponds within their property (Figure 1). In 2020, USFWS coordinated with the Latah Soil and Water Conservation District (Latah SWCD) to continue INHP's past water howellia monitoring on the Princeton site (Element Occurrence (EO) 4) and nearby Harvard site (EO 1) (Figure 2). (An EO is an area of land in which a species or natural community is or was present.) Water howellia and reed canarygrass frequency and water depth data were collected at these sites for a decade by partners. The newest data are currently being analyzed but old reports are available (see Lichthardt and Pekas 2019).

Restoration experimentation in action

During the 2023 monitoring event, the landowners expressed their ideas for reed canarygrass control to offer protection for the future of their water howellia population. This included plans to experiment with the removal of reed canarygrass surrounding one pond (Pond 2) using multiple strategies (mechanical and chemical) followed by re-planting of the area with native grasses, sedges, trees, and shrubs. Restoration work in 2023 included the following:

Reed canarygrass control

(Funded and completed by landowners)

1. Reed canarygrass thatch removal on the east end of Pond 2 followed by minor regrading of this disturbed area to enhance future pond inundation (Figure 3).
2. Grass selective herbicide treatments to suppress re-sprouting reed canarygrass following thatch removal.
3. Annual early to mid-summer mowing around pond edges and in fields surrounding the ponds paired with additional chemical, mechanical (disc and harrow), and re-seeding treatments to prevent re-encroachment of reed canarygrass.

Restoration plantings

(Funded by USFWS and INPS; completed by INPS volunteers and Latah SWCD staff and field crew)

4. Fall shrub and sedge plantings in the Pond 2 reed canarygrass control zone (Figures 3-7, Table 1).
5. Seeding with native grass mix throughout the disturbed area (Figure 8, seed tag photo).

It takes a village

While this effort has just begun, the partnership between the landowners, Latah SWCD, USFWS, and INPS has been steadfast in its support of the restoration work, and everyone involved continues to contribute to the project financially and in-kind. Ongoing work will include monitoring the initial reed canarygrass control efforts and the subsequent restoration plantings to inform future needs at this site. Additional control work, re-seeding, and plantings will be adapted to the conditions and will continue as needed. Lessons learned from the Pond 2 work may be utilized to expand the reed canarygrass reduction efforts at this and other pond locations if found to be effective and feasible. •

Reference

Lichtardt, J. and K. Pekas. 2019. Water howellia (*Howellia aquatilis*) monitoring in northern Idaho, 2005-2017. Idaho Natural Heritage Program, Idaho Department of Fish and Game, Boise, ID. 32 pp. plus appendices.

Figure 1.

Water howelllia pond within the Princeton, Idaho population, July 20, 2011. Photo by Brenda Erhardt.

Figure 2.

Water howellia monitoring at Pond 2, Princeton, Idaho population, July 8, 2022. Photo by Lauren McCleary.

Figure 3.

Water howellia Pond 2 restoration site following landowner's reed canarygrass control efforts, September 23, 2023. Photo by Leona Svancara.

Table 1.

Species list for restoration plantings at the Pond 2 restoration site.

Common Name	Scientific Name	Quantity	Size
Thinleaf Alder	*Alnus incana*	15	1 gal
Redosier dogwood	*Cornus sericea*	15	1 gal
Pacific ninebark	*Physocarpus capitatus*	10	1 gal
Oceanspray	*Holodiscus discolor*	2	2 gal
Serviceberry	*Amelanchier alnifolia*	5	1 gal
Common rush	*Juncus effusus*	25	10 cu in
Nebraska sedge	*Carex nebrascensis*	25	10 cu in

Figure 4.

Containerized plant placement before planting, October 13, 2023. Photo by Brenda Erhardt.

Figure 5.

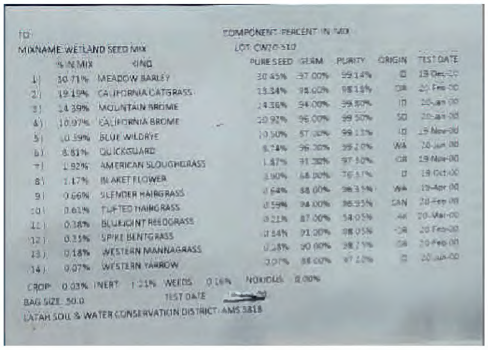
Mulch application following planting and seeding, October 13, 2023. Photo by Brenda Erhardt.

Figure 6.

Pond 2 restoration site following planting, seeding, and mulching, October 13, 2023. Photo by Brenda Erhardt.

Figure 7.

Landowner with INPS White Pine chapter volunteers and Latah SWCD field crew at the Pond 2 restoration site, October 13, 2023. Photo by Brenda Erhardt.



TO:
COMPONENT PERCENT IN MIX
MIXNAME: WETLAND SEED MIX
LOT: CW20-310

	% IN MIX	KIND	PURE SEED	GERM	PURITY	ORIGIN	TEST DATE
1)	30.71%	MEADOW BARLEY	30.45%	97.00%	99.14%	ID	[illegible]
2)	19.19%	CALIFORNIA OATGRASS	13.34%	98.00%	98.18%	OR	20-Feb-00
3)	14.39%	MOUNTAIN BROME	14.36%	94.00%	99.80%	ID	20-Jan-00
4)	10.97%	CALIFORNIA BROME	10.92%	96.00%	99.50%	SD	20-Jan-00
5)	10.59%	BLUE WILDRYE	10.50%	97.00%	99.13%	ID	19-Nov-00
6)	8.81%	QUICKGUARD	8.74%	96.30%	99.20%	WA	20-Jun-00
7)	1.92%	AMERICAN SLOUGHGRASS	1.87%	91.30%	97.10%	OR	19-Nov-00
8)	1.17%	BLANKET FLOWER	[illegible]	68.00%	76.57%	ID	19-Oct-00
9)	0.66%	SLENDER HAIRGRASS	0.64%	98.00%	98.35%	WA	19-Apr-00
10)	0.61%	TUFTED HAIRGRASS	0.59%	94.00%	98.93%	CAN	20-Feb-00
11)	0.38%	BLUEJOINT REEDGRASS	0.21%	87.00%	54.05%	AK	20-Mar-00
12)	0.25%	SPIKE BENTGRASS	0.24%	91.00%	98.05%	OR	20-Feb-00
13)	0.18%	WESTERN MANNAGRASS	[illegible]	90.00%	[illegible]	OR	20-Feb-00
14)	0.07%	WESTERN YARROW	0.07%	88.00%	97.20%	ID	20-Jun-00

CROP 0.03% INERT 1.21% WEEDS 0.16% NOXIOUS 0.00%
BAG SIZE: 50.0 TEST DATE
LATAH SOIL & WATER CONSERVATION DISTRICT · AMS 5818

Figure 8.

Seed tag for wetland grass mix used for re-seeding at the Pond 2 restoration site.

Desert Moss Ecology and Identification

By Roger Rosentreter, Pahove Chapter

Desert mosses often lack enough moisture where they grow to sexually reproduce, making them quite a challenge to identify. A ten-power hand lens helps, but the absence of reproductive structures complicates the identification greatly. For this reason, I have created a comparison table (Table 1) that focuses on vegetative characteristics to identify some of the most common taxa found in the western US.

How do these dry land mosses multiply if they rarely produce reproductive structures? Both the red roof and silver-tipped moss reproduce vegetatively–their leaf tips simply break-off, initiating a new colony. Silver-tipped moss is especially common on sidewalks around the world. Even though sidewalks are harsh sites on which to establish and grow, these "tough guy" mosses take advantage of such extreme habitats.

Twisted moss, another remarkable species commonly found in our region, consiste mostly of female "plants" (14:1 ratio, according to Stark et al. 1998). Twisted moss also reproduces asexually (vegetatively), with any part of the plant capable of regenerating, either directly or via an initial protonema (Mishler 1988). Protonema are an early stage or growth form of mosses that appear as green threads, more characteristic of algae. The key is rapid asexual establishment during the short periods favorable for growth. This adaptation facilitates growth and establishment in a water-limited environment.

These tiny, non-vascular spore-bearing land plants are extremely important in deserts, sagebrush steppe, alpine, and many other habitats around the globe. In spite of their prevalence, many researchers have "biocrust blindness" and never even see these minute ecosystem engineers. Mosses are excellent soil stabilizers (Copeland et al. 2023) by collecting blowing dust, adding soil depth and nutrients. They also reduce water and wind erosion (Eldridge and Leys 2003). Mosses inhibit large invasive annual grass seeds from becoming established by physically perching the seed above the soil surface (Serpe et al. 2006). The seeds may germinate, but the root radical cannot reach the soil before the seed dries out (Serpe et al. 2008). Mosses can decrease fire intensity or act as natural fuel breaks in sagebrush steppe habitats (Condon et al. 2023). They act much like a gardener's mulch, increasing water infiltration and decreasing soil moisture evaporation. •

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Recommented Reading

Recent moss books with good color photos that are suggested for general moss identification:

McCune, Bruce. and Martin Hutten. 2018. Common Mosses of Western Oregon and Washington. Wild Blueberry Media, Corvallis, OR. iv+148 pages. $40.

Pojar, J. and A. MacKinnon. 2016. Plants of the Pacific Northwest Coast: Washington, Oregon, British Columbia and Alaska (Revised). Lone Pine International, Tukwila, WA. $27.95.

Vitt, Dale H., Janet E. Marsh, and Robin B. Bovey. 1988. Mosses, Lichens and Ferns of Northwest North America. Lone Pine International, Tukwila, WA. This is out of print but there is a copy for sale on Amazon for $99. Wow, time to sell my copy.

Jenkins, Jerry. 2019. Mosses of the Northern Forest: A Photographic Guide. The Northern Forest Atlas Guides, BP-30. Cornell University Press, Ithaca, NY. $16.95.

Table 1. Common terricolous rangeland mosses of the Northern Great Basin. Conspectus of characters highlighted with bold type are good field characteristics. Roger Rosentreter (2019)

Species	Common Name	Color	Height	Awns or Leaf Tips	Awn or Leaf Tip Orientation	Capsule	Operculum	Height of Spore Capsule	Other Features	Repro-ductive Strategy	Image
Bryum argenteum	**Silver-tipped Moss**	Silver-tipped	Short	Blunt-tipped to medium (awned in v. lanatum)	Straight	Pendent to revolute	Conical to mammillate	Medium	Green stem; buds in leaf axils; cells rectangular; setae red then brown	**Vegetative leaf tips**	
Bryum caespiticium	Dry Calcareous Moss	Green	Medium	Short-medium	Straight or wrinkled	Smooth	Extended and slightly pointed	Medium	**Red stem**	Vegetative stem branching	
Ceratodon purpureus	Red Roof Moss	**Reddish-green**	Short	Medium leaf tips	**Divergent spreading; dry leaf tips like pinwheels**	8 ribs	Cone-shaped calyptra; extended and long, pointed	Medium	Leaf margins strongly recurved; quadrate leaf cells; setae red	Vegetative leaf tips	
Crossidium aberrans	Earth Moss, Crossidium Moss	**Dark brown**	Short	Very acute, whitish	Straight	Red-brown	Long, slender, brown, blunt	Medium	Costa filaments	Spores	
Didymodon rigidulus	Rigid Leaf Didymodon	**Black to red-brown**	Short	Blunt, no awn	Straight	Hook-nosed	Pointed	Medium	Leaves erect; clumpy growth habit	Spores	
Funaria hygrometrica	Cord Moss, Funaria Moss	Green	Short	Short-medium	Straight	Asymmetrical; red margin; 16 ribs	**Blunt and flattened**	Tall	Tan to brown; setae sinuose and twist when moistened	Annually by spores	
Tortula ruralis Syn: *Syntrichia ruralis*	Twisted Moss	Brown when dry, green when wet	Tall, mostly >1 cm	Long	Twisting and divergent	Long, cylindrical	Long and pointed	Tall	**Awns and leaves twist when moistened; often under canopy**	Long lived spores and broken leaves	
Pterygoneurum ovatum	Onion Moss	Green-brown	Short, 1-3 mm	**Whitish, slender awns up to 2 mm long**	Irregular	Ovate	Long, pointed, deciduous	Short	Small clusters, 3-10 plants, with lamellae on the leaf axis	Vegetative by lamellae	
Encalypta vulgaris	Extinguisher Moss	**Bright green**	Short-medium	Short awned or lacking	Contorted when dry	**Erect, calyptra large**	Long, slender with a blunt tip	Short-medium	Leaves crisped and curled; leaf cells papillate	Spores, vegetative by brood bodies in leaf axis	
Selaginella densa *	Lesser Spikemoss	Green when wet, tan-brown when dry	Creeping, long	Acute	Straight	In the axis of leaves	N/A	N/A	**Square stems on the fertile stalks; leaves dense**	Megaspores and fragmentation	

* *Note: Selaginella is not a moss (it's a vascular plant), but is included because it can superficially look like a moss.*

Family Spotlight

Rays and Disks—The Asteraceae Family in Idaho

By Don Essig, Wes Essig (Data Compilation), Pahove Chapter

You know this family as daisies, sunflowers, and dandelions. This is one of the largest plant families in the world, accounting for about 10% of all known species and is especially dominant in temperate climates like ours. In Idaho there are 120 genera and 450 species of asters. The *Erigeron* genus is the most diverse with 45 species, while 52 genera are mono-typic in Idaho. In this family, what we think of as one flower is actually a composite of many small flowers or florets bunched together on a common receptacle forming a flower head, aka inflorescence. Indeed, before standardization in taxonomic naming, this was known as the Compositae family. Below is a list of aster family species, née composites, of Idaho.

Four types of florets are found—ray, disk, ligulate and bilabiate. All four consist of five fused petals. Ray florets are straplike flattened tubes that are sterile or may contain only female reproductive parts—pistils. These florets are what we pull out of a daisy as we wonder if "he/she loves me—he/she loves me not". What remains when we are done wondering is a cluster of tubular disk florets that make up the center of a daisy. Ligulate florets are like rays but have five teeth and are perfect, that is, contain both male (anthers) and female (pistil) parts. Relatively rare bilabiate florets have a longer lower lip.

Most aster inflorescences, like those of daisies and sunflowers, have both peripheral ray and central disk florets. Other genera have only disk florets, like *Chaenactis*, thistles, and western coneflower. Plants in the cichorioideae subtribe—characterized by chicory but including dandelions—have only ligulate florets. Some members of the aster family have multiple inflorescences on a branched flower stalk. You will never confuse a hawksbeard (*Crepis* sp.) with a dandelion (*Taraxacum* sp.) if you remember the former has a branched flower stalk while the latter has one flower head per stalk.

In Idaho, one of the most iconic members of this widely distributed family is arrowleaf balsamroot. Sagebrush and rabbitbrush are also widespread and well-known members of this family even if not often recognized as asters. Most aster family species are, however, non-woody perennials with rather showy flower heads. Many asters are summer or fall bloomers, brightening our landscape well after spring blooms are gone. Some of our worst weeds are asters as well, e.g. knapweed and star thistle. Next time you are out in the sagebrush steppe, look around—the closest flower you see is most likely a member of the aster family. •

Asters in Idaho - Species List

Scientific Name	Common Name	Scientific Name	Common Name
Achillea millefolium	Common Yarrow	*Antennaria neglecta*	Field Pussytoes
Achillea ptarmica	False Sneezewort	*Antennaria parvifolia*	Nuttall's Pussytoes
Acroptilon repens	Russian Knapweed	*Antennaria pulcherrima*	Handsome Pussytoes
Adenocaulon bicolor	American Trail-plant	*Antennaria racemosa*	Hooker's Pussytoes
Ageratina herbacea	Fragrant Thorough-wort	*Antennaria rosea*	Rosy Pussytoes
Ageratina occidentalis	Western Joepye-weed	*Antennaria stenophylla*	Narrowleaf Pussytoes
Agoseris aurantiaca	Orange-flowered False-dandelion	*Antennaria umbrinella*	Brown Pussytoes
Agoseris glauca	Pale False-dandelion	*Anthemis arvensis*	Corn Camomile
Agoseris grandiflora	Large-flower False-dandelion	*Anthemis cotula*	Mayweed
Agoseris heterophylla	Annual False-dandelion	*Anthemis tinctoria*	Golden Camomile
Agoseris lackschewitzii	Pink Agoseris	*Arctium lappa*	Greater Burdock
Agoseris retrorsa	Spear-leaf False-dandelion	*Arctium minus*	Lesser Burdock
Ambrosia acanthicarpa	Flat-spine Bursage	*Arnica alpina*	Alpine Arnica
Ambrosia artemisiifolia	Annual Ragweed	*Arnica amplexicaulis*	Stream-bank Arnica
Ambrosia coronopifolia	Western Ragweed	*Arnica angustifolia*	Narrowleaf Leopardbane
Ambrosia psilostachya	Naked-spike Ambrosia	*Arnica chamissonis*	Leafy Arnica
Ambrosia tomentosa	Skeleton-leaf Bursage	*Arnica cordifolia*	Heart-leaved Arnica
Ambrosia trifida	Great Ragweed	*Arnica fulgens*	Hillside Arnica
Anaphalis margaritacea	Pearly Everlasting	*Arnica gracilis*	Slender Leopardbane
Antennaria alpina	Alpine Pussytoes	*Arnica latifolia*	Mountain Arnica
Antennaria anaphaloides	Handsome Pussytoes	*Arnica longifolia*	Long-leaf Arnica
Antennaria arcuata	Meadow Pussytoes	*Arnica mollis*	Hairy Arnica
Antennaria corymbosa	Meadow Pussytoes	*Arnica parryi*	Nodding Arnica
Antennaria dimorpha	Two-form Pussytoes	*Arnica rydbergii*	Subalpine Arnica
Antennaria flagellaris	Stoloniferous Pussytoes	*Arnica sororia*	Twin Arnica
Antennaria howellii	Small Pussytoes	*Arnica x diversifolia*	Rayless Arnica
Antennaria lanata	White-margined Pussytoes	*Artemisia absinthium*	Common Wormwood
Antennaria luzuloides	Silvery Brown Pussytoes	*Artemisia annua*	Annual Wormwood
Antennaria media	Stony Mountain Pussytoes	*Artemisia arbuscula*	Dwarf Sagebrush
Antennaria microphylla	Small-leaf Cat's-foot	*Artemisia biennis*	Biennial Wormwood

Artemisia campestris	Pacific Wormwood
Artemisia cana	Hoary Sagebrush
Artemisia douglasiana	Douglas' Wormwood
Artemisia dracunculus	Dragon Wormwood
Artemisia frigida	Prairie Sagebrush
Artemisia lindleyana	Columbia River Wormwood
Artemisia longifolia	Long-leaf Wormwood
Artemisia ludoviciana	White Sagebrush
Artemisia michauxiana	Michaux's Wormwood
Artemisia nova	Black Sagebrush
Artemisia packardiae	Packard's Mugwort
Artemisia papposa	Owyhee Sagebrush
Artemisia pedatifida	Bird's-foot Sagebrush
Artemisia rigida	Scabland Sagebrush
Artemisia rothrockii	Rothrock's Artemisia
Artemisia tilesii	Tilesius Wormwood
Artemisia tridentata	Big Sagebrush
Artemisia tripartita	Three-tip Sagebrush
Balsamita major	Coastmary
Balsamorhiza careyana	Carey's Balsamroot
Balsamorhiza deltoidea	Deltoid Balsamroot
Balsamorhiza hookeri	Hooker's Balsamroot
Balsamorhiza incana	Hoary Balsamroot
Balsamorhiza macrophylla	Cut-leaf Balsamroot
Balsamorhiza sagittata	Arrow-leaf Balsam-root
Balsamorhiza x tomentosa	A Balsamroot
Bellis perennis	Lawn Daisy
Bidens beckii	Beck's Water-marigold
Bidens cernua	Nodding Beggarticks
Bidens frondosa	Devil's Beggarticks
Bidens tenuisecta	Slim-lobe Beggar-ticks
Bidens vulgata	Tall Bur-marigold
Blepharipappus scaber	Rough Eyelash-weed
Boltonia asteroides	Aster-like Boltonia
Brachyactis frondosa	Alkali Aster
Brickellia californica	California Brickell-bush
Brickellia grandiflora	Tassel Flower
Brickellia microphylla	Littleleaf Brickell-bush
Brickellia oblongifolia	Narrowleaf Brickell-bush
Canadanthus modestus	Great Northern Aster
Carduus acanthoides	Spiny Plumeless-thistle
Carduus nutans	Musk Thistle
Carduus pycnocephalus	Italian Thistle
Carthamus tinctorius	False Saffron
Centaurea cyanus	Garden Cornflower
Centaurea diffusa	Diffuse Knapweed
Centaurea jacea	Brown Starthistle
Centaurea montana	Mountain Starthistle
Centaurea nigra	Black Starthistle
Centaurea scabiosa	Great Starthistle
Centaurea solstitialis	Yellow Starthistle
Centaurea trichocephala	Feather-head Knapweed
Chaenactis cusickii	Cusick's False Yarrow
Chaenactis douglasii	Hoary Pincushion
Chaenactis evermannii	Evermann's Pincushion
Chaenactis leucopsis	
Chaenactis macrantha	Large-flowered Chaenactis
Chaenactis nevii	John Day Pincushion
Chaenactis stevioides	Desert Pincushion
Chaetadelpha wheeleri	Wheeler's Skeleton-weed
Chamaechaenactis scaposa	Fullstem
Chondrilla juncea	Rush Skeletonweed
Chrysothamnus humilis	Dwarf Rabbitbrush
Chrysothamnus viscidiflorus	Sticky-leaf Rabbitbrush
Cichorium intybus	Chicory
Cirsium andersonii	Anderson's Thistle
Cirsium arvense	Creeping Thistle
Cirsium brevifolium	Palouse Thistle
Cirsium brevistylum	Short-style Thistle
Cirsium canescens	Prairie Thistle
Cirsium canovirens	Gray Green Thistle
Cirsium davisii	Davis' Thistle
Cirsium eatonii	Eaton's Thistle
Cirsium edule	Edible Thistle
Cirsium flodmanii	Flodman's Thistle
Cirsium foliosum	Leafy Thistle
Cirsium hookerianum	Hooker's Thistle
Cirsium murdockii	Murdock's Thistle
Cirsium neomexicanum	New Mexico Thistle
Cirsium pulcherrimum	Wyoming Thistle
Cirsium scariosum	Drummond's Thistle
Cirsium subniveum	Western Thistle
Cirsium tioganum	Stemless Thistle
Cirsium undulatum	Nodding Thistle
Cirsium vulgare	Bull Thistle
Conyza canadensis	Canada Horseweed
Coreopsis tinctoria	Golden Tickseed
Crepis acuminata	Longleaf Hawk's-beard
Crepis atribarba	Slender Hawksbeard
Crepis bakeri	Baker's Hawk's-beard
Crepis capillaris	Smooth Hawk's-beard
Crepis modocensis	Siskiyou Hawk's-beard
Crepis nana	Dwarf Alpine Hawk's-beard
Crepis occidentalis	Gray Hawk's-beard
Crepis pleurocarpa	Naked-stem Hawksbeard
Crepis runcinata	Naked-stem Hawk's-beard
Crupina vulgaris	Common Crupina
Dimeresia howellii	Dimeresia
Dugaldia hoopesii	Orange-sneezeweed
Eatonella nivea	White Eatonella
Enceliopsis nudicaulis	Panamint Sunray
Ericameria bloomeri	Rabbitbrush Goldenweed
Ericameria discoidea	California Heath-Goldenrod
Ericameria greenei	Greene's Goldenweed
Ericameria nana	Dwarf Goldenweed
Ericameria nauseosa	Rubber Rabbitbrush
Ericameria parryi	Parry's Rabbitbrush
Ericameria resinosa	Columbia Goldenweed
Ericameria suffruticosa	Single-head Goldenweed
Erigeron acris	Bitter Fleabane
Erigeron annuus	White-top Fleabane
Erigeron aphanactis	Rayless Shaggy Fleabane
Erigeron asperugineus	Idaho Fleabane
Erigeron austiniae	Sagebrush Fleabane
Erigeron bloomeri	Bloomer's Fleabane
Erigeron caespitosus	Caespitose Fleabane
Erigeron chrysopsidis	Dwarf Yellow Fleabane
Erigeron compositus	Dwarf Mountain Fleabane
Erigeron concinnus	Navajo Fleabane
Erigeron corymbosus	Longleaf Fleabane
Erigeron coulteri	Coulter's Fleabane
Erigeron cronquistii	Cronquist's Daisy
Erigeron disparipilus	White Cushion Fleabane
Erigeron divergens	Spreading Fleabane
Erigeron eatonii	Eaton's Fleabane
Erigeron engelmannii	Engelmann's Fleabane
Erigeron evermannii	Evermann's Fleabane
Erigeron filifolius	Threadleaf Fleabane
Erigeron glabellus	Smooth Fleabane
Erigeron gracilis	Slender Fleabane

...Continued on Page 12

Aster Family in Idaho *Continued from Page 11...*

Erigeron humilis	Low Fleabane
Erigeron jonesii	Jones' Fleabane
Erigeron latus	Broad Fleabane
Erigeron leiomerus	Smooth Fleabane
Erigeron linearis	Linearleaf Fleabane
Erigeron lonchophyllus	Short-ray Fleabane
Erigeron nanus	Dwarf Fleabane
Erigeron peregrinus	Foreign Fleabane
Erigeron philadelphicus	Philadelphia Fleabane
Erigeron poliospermus	Hairy-seed Fleabane
Erigeron pumilus	Shaggy Fleabane
Erigeron radicatus	Taprooted Fleabane
Erigeron rydbergii	Rydberg's Daisy
Erigeron salmonensis	Salmon River Fleabane
Erigeron simplex	One-stem Fleabane
Erigeron speciosus	Aspen Fleabane
Erigeron strigosus	Daisy Fleabane
Erigeron subtrinervis	Three-nerve Fleabane
Erigeron tener	Tender Fleabane
Erigeron tweedyi	Tweedy's Fleabane
Erigeron uintahensis	Uintah Fleabane
Erigeron uncialis	Lone Fleabane
Erigeron ursinus	Bear River Fleabane
Erigeron watsonii	Watson's Fleabane
Eriophyllum lanatum	Common Woolly-sunflower
Eucephalus elegans	Elegant Aster
Eucephalus engelmannii	Engelmann's Aster
Eupatorium maculatum	Spotted Joe-pyeweed
Eurybia conspicua	Showy Aster
Eurybia glauca	Gray Aster
Eurybia integrifolia	Thick-stem Aster
Eurybia merita	Arctic Aster
Eurybia sibirica	Siberian Aster
Euthamia graminifolia	Flat-top Fragrant-goldenrod
Euthamia occidentalis	Western Fragrant Goldenrod
Filago arizonica	Arizona Filago
Filago californica	California Fluffweed
Gaillardia aristata	Great Blanket-flower
Galinsoga parviflora	Small-flower Quickweed
Galinsoga quadriradiata	Fringed Quickweed
Glyptopleura marginata	White-margined Wax Plant
Gnaphalium exilifolium	Slender Cudweed
Gnaphalium microcephalum	White Cudweed
Gnaphalium palustre	Western Marsh Cudweed
Gnaphalium stramineum	Cotton-batting Cudweed
Gnaphalium uliginosum	Low Cudweed
Gnaphalium viscosum	Winged Cudweed
Grindelia columbiana	Columbian Gumweed
Grindelia howellii	Howell's Gumweed
Grindelia nana	Idaho Gumweed
Grindelia squarrosa	Broadleaf Gumweed
Gutierrezia microcephala	Small-head Snakeweed
Gutierrezia sarothrae	Broom Snakeweed
Helenium autumnale	Common Sneezeweed
Helianthella quinquenervis	Nodding Rockrose
Helianthella uniflora	Rocky Mountain Rockrose
Helianthus annuus	Common Sunflower
Helianthus ciliaris	Blue-weed Sunflower
Helianthus cusickii	Cusick's Sunflower
Helianthus maximiliani	Maximillian Sunflower
Helianthus nuttallii	Nuttall's Sunflower
Helianthus petiolaris	Prairie Sunflower
Helianthus tuberosus	Jerusalem Artichoke
Heliomeris multiflora	Many-flower Viguiera
Hemizonia pungens	Common Tarweed
Heterotheca barbata	Bearded Golden Aster
Heterotheca villosa	Hairy False Goldenaster
Heterotheca zionensis	Zion Goldenaster
Hieracium albiflorum	White-flower Hawkweed
Hieracium aurantiacum	Orange Hawkweed
Hieracium caespitosum	Meadow Hawkweed
Hieracium canadense	Canada Hawkweed
Hieracium cynoglossoides	Hound's-tongue Hawkweed
Hieracium gracile	Alpine Hawkweed
Hieracium scouleri	Scouler's Hawkweed
Hieracium umbellatum	Umbellate Hawkweed
Hulsea algida	Alpine Hulsea
Hulsea nana	Dwarf Hulsea
Hymenopappus filifolius	Fineleaf Woollywhite
Hymenoxys cooperi	Cooper's Bitterweed
Hymenoxys richardsonii	Richardson's Bitterweed
Hypochaeris radicata	Spotted Cat's-ear
Ionactis alpina	Lava Ankle-aster
Ionactis stenomeres	Rocky Mountain Aster
Iva axillaris	Small-flowered Marsh-elder
Iva xanthifolia	Coarse Sumpweed
Lactuca biennis	Tall Blue Lettuce
Lactuca canadensis	Canada Lettuce
Lactuca ludoviciana	Western Lettuce
Lactuca sativa	Garden Lettuce
Lactuca serriola	Prickly Lettuce
Lactuca tatarica	Tartarian Lettuce
Lagophylla ramosissima	Slender Hareleaf
Lapsana communis	Common Nipplewort
Layia glandulosa	Glandular Layia
Leontodon autumnalis	Autumn Hawkbit
Leucanthemum vulgare	Oxeye Daisy
Logfia arvensis	Field Fluffweed
Lygodesmia dianthopsis	Antelope Isl. Skeleton-plant
Lygodesmia grandiflora	Large-flower Skeleton-plant
Lygodesmia juncea	Rush Skeleton-plant
Machaeranthera bigelovii	Bigelow's Tansy-aster
Machaeranthera canescens	Hoary Tansy-aster
Machaeranthera grindelioides	Western Aster
Machaeranthera laetevirens	
Madia citriodora	Lemon-scent Tarweed
Madia exigua	Little Tarweed
Madia glomerata	Mountain Tarweed
Madia gracilis	Grassy Tarweed
Madia minima	Small-head Tarweed
Malacothrix californica	California Desert-dandelion
Malacothrix glabrata	Smooth Malacothrix
Malacothrix sonchoides	Sow-thistle Desert-dandelion
Malacothrix torreyi	Torrey's Malacothrix
Matricaria discoidea	Pineapple-weed Chamomile
Microseris lindleyi	Lindley's Silverpuffs
Microseris nutans	Nodding Silverpuffs
Nestotus stenophyllus	Narrowleaf Mock Goldenweed
Nothocalais nigrescens	Black Hairy False-dandelion
Nothocalais troximoides	Weevil False-dandelion
Onopordum acanthium	Scotch Cotton-thistle
Oreostemma alpigenum	Anderson's Aster
Packera cana	Silvery Ragwort
Packera cymbalaria	Dwarf Arctic Groundsel
Packera debilis	Rocky Mountain Ragwort
Packera dimorphophylla	Two-leaf Ragwort
Packera indecora	Plains Ragwort
Packera multilobata	Lobeleaf Groundsel
Packera pauciflora	Few-flower Ragwort
Packera paupercula	Balsam Ragwort

Packera pseudaurea	Western Golden Groundsel
Packera werneriifolia	Rock Groundsel
Petasites frigidus	Arctic Butter-bur
Petasites frigidus var. *sagittatus*	arrowleaf sweet coltsfoot
Petasites sagittatus	Arrowleaf Coltsfoot
Petradoria pumila	Grassy Rock-goldenrod
Picrothamnus desertorum	Bud Sagebrush
Pleiacanthus spinosus	Thorny Wire-lettuce
Prenanthella exigua	Desert Prenanthella
Prenanthes alata	Western Rattlesnake-root
Prenanthes sagittata	Arrow-leaf Rattlesnake-root
Psathyrotes annua	Annual Brittlebrush
Pseudognaphalium canescens	Wright's Cudweed
Psilocarphus brevissimus	Round Woolly-heads
Psilocarphus elatior	Tall Woolly-heads
Psilocarphus oregonus	Oregon Woolly-heads
Psilocarphus tenellus	Slender Woolly-heads
Psilostrophe bakeri	Baker's Paper-flower
Pyrrocoma carthamoides	Large-flower Goldenweed
Pyrrocoma hirta	Tacky Goldenweed
Pyrrocoma insecticruris	Bugleg Goldenweed
Pyrrocoma integrifolia	Entire-leaved Goldenweed
Pyrrocoma lanceolata	Lanceleaf Goldenweed
Pyrrocoma liatriformis	Palouse Goldenweed
Pyrrocoma linearis	Thinleaf Goldenhead
Pyrrocoma racemosa	Clustered Goldenweed
Pyrrocoma radiata	Snake River Goldenweed
Pyrrocoma scaberula	Rough Goldenweed
Pyrrocoma uniflora	Plantain Goldenweed
Ratibida columnifera	Upright Prairie Coneflower
Rigiopappus leptocladus	Bristle-head
Rudbeckia hirta	Black-eyed-Susan
Rudbeckia laciniata	Greenhead Coneflower
Rudbeckia occidentalis	Western Coneflower
Saussurea americana	American Saw-wort
Saussurea weberi	Weber's Saw-wort
Senecio crassulus	Thick-leaf Groundsel
Senecio cymbalarioides	Cleft-leaf Groundsel
Senecio fremontii	Fremont's Ragwort
Senecio hydrophiloides	Sweet Marsh Ragwort
Senecio hydrophilus	Great Swamp Ragwort
Senecio integerrimus	Entire-leaf Ragwort
Senecio jacobaea	Tansy Ragwort
Senecio lugens	Black-tip Groundsel
Senecio megacephalus	Nuttall's Ragwort
Senecio rapifolius	Idaho Ragwort
Senecio serra	Tall Groundsel
Senecio sphaerocephalus	Rough-head Groundsel
Senecio streptanthifolius	Cleftleaf Ragwort
Senecio triangularis	Arrow-leaf Groundsel
Senecio vulgaris	Old-Man-in-the-Spring
Solidago canadensis	Canada Goldenrod
Solidago gigantea	Smooth Goldenrod
Solidago missouriensis	Missouri Goldenrod
Solidago multiradiata	Alpine Goldenrod
Solidago nana	Baby Goldenrod
Solidago simplex	Sticky Goldenrod
Solidago spathulata	Sticky Goldenrod
Solidago spectabilis	Spectacular Goldenrod
Solidago velutina	Three-nerve Goldenrod
Sonchus arvensis	Field Sowthistle
Sonchus asper	Spiny-leaf Sowthistle
Sonchus oleraceus	Common Sowthistle
Sphaeromeria argentea	Nuttall's False Sagebrush
Sphaeromeria potentilloides	Cinquefoil Tansy
Stenotus acaulis	Stemless Mock Goldenweed
Stenotus lanuginosus	Woolly Golden-weed
Stephanomeria exigua	Small Skeletonplant
Stephanomeria minor	Narrowleaf Skeletonplant
Stephanomeria paniculata	Stiff-branch Wire-lettuce
Stephanomeria virgata	Virgate Wire-lettuce
Stylocline filaginea	Stylocline
Stylocline psilocarphoides	Malheur Stylocline
Symphyotrichum ascendens	Western Aster
Symphyotrichum boreale	Rush Aster
Symphyotrichum campestre	Western Meadow-aster
Symphyotrichum chilense	Pacific American-aster
Symphyotrichum ciliatum	Alkali American-aster
Symphyotrichum cusickii	Cusick's Aster
Symphyotrichum eatonii	Eaton's Aster
Symphyotrichum ericoides	White Heath Aster
Symphyotrichum falcatum	White Prairie Aster
Symphyotrichum foliaceum	Leafy-bracted Aster
Symphyotrichum hendersonii	Henderson's American-aster
Symphyotrichum jessicae	Jessica's Aster
Symphyotrichum laeve	Smooth Blue Aster
Symphyotrichum lanceolatum	Panicled Aster
Symphyotrichum novi-belgii	Longleaf Aster
Symphyotrichum praealtum	Willow Aster
Symphyotrichum spathulatum	Western Mountain Aster
Symphyotrichum subspicatum	Douglas' Aster
Tanacetum parthenium	Feather-leaf Tansy
Tanacetum vulgare	Common Tansy
Taraxacum eriophorum	Wool-bearing Dandelion
Taraxacum laevigatum	Redseed Dandelion
Taraxacum lyratum	Alpine Dandelion
Taraxacum officinale	Common Dandelion
Tetradymia canescens	Gray Horsebrush
Tetradymia glabrata	Littleleaf Horsebrush
Tetradymia spinosa	Short-spine Horsebrush
Tetraneuris acaulis	Stemless Four-nerve-daisy
Tetraneuris grandiflora	Old-Man-of-the-Mountain
Tonestus lyallii	Lyall's Haplopappus
Townsendia alpigena	Wyoming Townsend-daisy
Townsendia condensata	Cushion Townsend-daisy
Townsendia exscapa	Silky Townsend-daisy
Townsendia florifera	Showy Townsend-daisy
Townsendia hookeri	Hooker's Townsend-daisy
Townsendia lemhiensis	Lemhi Valley Townsend-daisy
Townsendia leptotes	Common Townsend-daisy
Townsendia mensana	Western Townsend-daisy
Townsendia parryi	Parry's Townsend-daisy
Townsendia spathulata	Sword Townsendia
Tragopogon dubius	Meadow Goat's-beard
Tragopogon mirus	Washington Goat's-beard
Tragopogon miscellus	Ownbey's Goat's-beard
Tragopogon porrifolius	Purple Goat's-beard
Tragopogon pratensis	Meadow Goat's-beard
Triniteurybia aberrans	Idaho Goldenweed
Tripleurospermum maritima	False Chamomile
Tripleurospermum perforata	Scentless False Mayweed
Wyethia amplexicaulis	Northern Mule's-ears
Wyethia angustifolia	Narrowleaf Mule's-ears
Wyethia helenioides	Gray Muleears
Wyethia helianthoides	White-head Mule's-ears
Wyethia invenusta	Coville's Mule's-ears
Xanthisma spinulosum	Spiny Goldenaster
Xanthium spinosum	Spiny Cocklebur
Xanthium strumarium	Rough Cocklebur

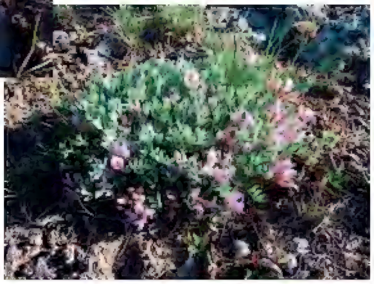
(Source: IDFG Species Catalog, Asteraceae Family | Idaho Fish and Game)

Pahove Chapter Spring Wildflower Walks Return

By Barbara Ertter, Pahove Chapter

The Pahove Chapter has been offering a series of wildflower/natural history walks this spring, thus far led by local botanist Barbara Ertter. Walks are selected to showcase the diversity of habitats and particularly interesting species in the greater Boise Front (as per https://boisefrontnature.com/), preferentially using old roadbeds (better for groups) instead of single-track trails. Specific walks are decided upon about a week in advance, based on a combination of current phenology and weather reports (and the walk leader's schedule!). Notifications of each walk are then circulated by email to Pahove members. Dogs are not encouraged, due to general incompatibilities between generic dog-walking and focused wildflower walks. For a selection of self-guided walk options, check out https://boisefrontnature.com/wildflower-walks/.

Beckwith's violet (Viola beckwithii). Photo by Barbara Ertter.



Hare's-foot milkvetch (Astragalus purshii var. lagopinus). Photo by Barbara Ertter.

Lydle Gulch, 10 April 2024

One of the earliest wildflower walks was to Lydle Gulch in the Lucky Peak Dam Recreation Area, where we w able to catch two locally rare plants in bloom: hare's-foot milkvetch (*Astragalus purshii* var. *lagopinus*) and Beckwith's violet (*Viola beckwithii*). The unusual volcanic soils provide one of the only localities for hare's-foot milkvetch in Idaho, which differs from the much more common variety of woolly-pod milkvetch (*A. purshii* var. *glareous*) in its more compact growth form, smaller flowers, and smaller fruit. Participants were also treated to a prime remnant of good-quality sagebrush steppe with a fine selection of early spring flowers, along with an overview of the unusual geology of the area and natural history observations by Mary Hallock Foote. Although not part of the walk, participants were encouraged to visit the Foote Interpretive Site at the mouth of Lydle Gulch, to learn more about Mary and her husband Arthur, and to admire the wildflower garden created and maintained by INPS volunteers.

Participants on Lydle Gulch wildflower walk. Photo by Barbara Ertter.

Participants on Oregon Trail Wildflower Walk. Photo by Barbara Ertter.

Oregon Trail Recreation Area, 30 April 2024

The stretch of the Oregon Trail above basalt cliffs on the south side of the Boise River lies in the Intermountain Flora, with some different flowers than can be found in the foothills north of the river (in the *Flora of the Pacific Northwest*). Participants in the photo are standing behind a patch of hairy balsamroot (*Balsamorhiza hispidula*, or *B. hookeri* var. *hispidula*). The larger plant in the lower right corner is a hybrid between hairy balsamroot and arrowleaf balsamroot; heads are drooping because of the previous night's freezing temperatures. Some other plants of local interest included bigseed biscuitroot (*Lomatium macrocarpum*) and a form of wax currant (*Ribes cereum*) growing on the basalt rimrock; Oregon cliff fern (*Woodsia oregana*) was another treat to admire. General discussion wandered from intact vs. invaded sagebrush steppe to plants-as-geologists to Arthur and Mary Hallock Foote and the construction of Diversion Dam, complete with excerpts from Mary Hallock Foote's book "The Chosen Valley."

Three Bears Trail, 16 May 2024

The next wildflower walk was along the lower end of Three Bears Trail at the east end of Fort Boise-Military Reserve in the central Foothills, where we enjoyed a nice selection of flowers growing on a diversity of geological substrates, with volcanic layers cutting through Lake

Idaho sediments. Highlights included a lovely stand of longspur or "polychrome" lupine (*Lupinus arbustus*), the locally rare Bolander's yampah (*Perideridia bolanderi*) on the volcanics, Lindley's silverpuffs (*Uropappus lindleyi*), and the bizarre Franciscan broomrape (*Aphyllon franciscanum*, previously included in *Orobanche fasciculatum*) growing as a root parasite on silverleaf phacelia (*Phacelia hastata*).

Participants on Three Bears Trail wildflower walk, photographing Franciscan broomrape. Photo by Barbara Ertter.

Mores Creek High Bridge, 5 June 2024

The most recent wildflower walk allowed us to marvel at a wonderful diversity of local plants on a surprisingly intact north-facing slope overlooking the High Bridge over Mores Creek Arm of Lucky Peak Reservoir. After a minimally interesting uphill slog through a previous burn area now dominated by non-natives, we were rewarded with a gentle transect across a north-facing slope harboring amazingly intact shrub-steppe on the edge of the Idaho Batholith. The beautiful wildflower-covered slope included numerous species not found on the Lake Idaho sediments of the central foothills. Among the special treats were the abundant Idaho fescue (*Festuca idahoensis*), ragged-robins (*Clarkia pulchella*), and locally rare intermountain bedstraw (*Galium serpenticum*, previously included in *G. multiflorum*). •

Participants on Mores Creek High Bridge wildflower walk. Photo by Anne Halford.

Chapter Activities

Pahove Chapter's Earth Day Celebration

By Vicki Henderson, Pahove Chapter, Open AI, 2024

In May, the Pahove Chapter participated in Boise's Earth Day Celebration at Kristin Armstrong Municipal Park, which attracted hundreds of visitors. The Idaho Native Plant Society (INPS) participated by handing out information on membership, upcoming events including the plant sale and the Mother's Day Wildflower+ Show, and the importance of native plants.

This year's theme, "Climate Action," emphasized simple steps to combat climate change. Community partners provided ideas for creating personal climate action plans, rewarding participants with thank you gifts. The celebration highlighted Boise's commitment to sustainability, with attendees encouraged to walk, ride, or roll to the event. The high turnout and enthusiastic response underscored the community's dedication to environmental stewardship. •

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Pahove Chapter's 6th Annual Wildflower+ Show a Success

By Barbara Ertter, Pahove Chapter

The Pahove Chapter is celebrating the success of its 6th Annual Wildflower+ Show, in near-perfect weather at the Idaho Botanical Garden on Mother's Day, May 12, 2024. Several hundred people were able to enjoy and learn about over 200 different wild-collected plants, attractively arranged and labeled with both common and scientific names in a pleasant outdoor setting. Plants had been gathered for several days from in and around Boise, across the Snake River in the Owyhees, and as far afield as Hells Canyon, by Barbara Ertter, Beth Corbin, Don Mansfield, Bob Moseley, Martha McClay, and Jessica Irwin.

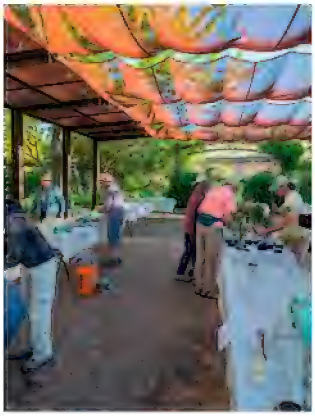
Kevin Laughlin staffing the INPS table, with other special topic tables in the background.

Early on the morning of the show, a dedicated cadre of botanists, Master Naturalists, and other volunteers converged on the shaded plaza of the Idaho Botanical Garden to arrange tables, vases, flowers, and labels in what, at times, seemed organized chaos but which ultimately resulted in an amazingly fast and efficient set-up, ready to be admired by Mother's Day visitors to the Garden. Volunteers reconverged at the end of the show, quickly clearing the tables, repacking vases in newspaper, and schlepping boxes back to cars.

As in previous years, plants were arranged by several categories: native wildflowers (the largest category this year), herbaceous non-natives, woody plants, grasses and grasslike plants, and ferns and relatives. Several of us stayed throughout the show, answering questions and encouraging interest among visitors. Young visitors in particular really enjoyed the magnifying glasses scattered around, allowing a closer look at fascinating details of the plants.

Volunteer coordinator extraordinaire Helen Harrington. Photo by Nancy DeWitt.

In the shade of a separate large tent-canopy, several tables provided information on specialty topics. In addition to the Pahove table itself, superbly staffed by Kevin Laughlin, visitors flocked to tables to learn about native plant activities at the Garden (including propagation of the rare Boise sand-verbena), bees and the Master Mellitologist program, and liverworts (with special thanks to Daniel Murphy, Amy Dolan, and Chadwick DeFehr). We hope to have more specialty topic tables at future shows, with lots of ideas already in the hopper!



Master Naturalists and other volunteers setting up the show. Photo by EKV.

Special thanks to the Idaho Botanical Garden for continuing to host the annual Wildflower+ Show, and in particular to Visitor Services/Event Coordinator Hannah Cain and her team in getting everything set up as needed; to the amazing volunteers from the Sage-Brush Steppe and Deer Flat Chapters of Idaho Master Naturalists, in particular Helen Harrington for taking on the coordinator role so capably; to those especially dedicated volunteers who stayed the entire day; and to Susan Ziebarth for creating the poster and getting new labels laminated. •

Visitors enjoying the show. Photo by Barbara Ertter.

Martha McClay (center) assisting visitors. Photo by Barbara Ertter.

Don Mansfield and Amy Stillman confirming identifications of plants during set-up. Photo by Nancy DeWitt.

Pahove Chapter's Annual Native Plant Sale

By Bethany Tennant, Biological Aide, MK Nature Center; Photos by Lynn Kinter

This year's native plant sale was the first that I've attended since I began working at MK Nature Center as a Biological Aide in 2023. Even before the doors opened for the sale, the energy was palpable as I watched the line of waiting customers stretch into the parking lot, so far that I couldn't see where it ended.

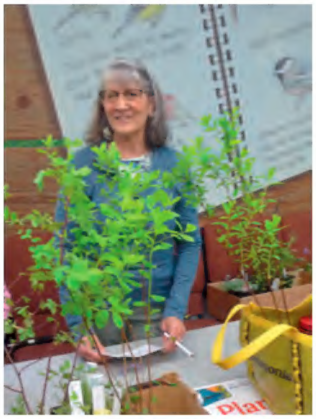
Before my time at MK Nature Center I had worked many years in retail, and I knew immediately that the turnout for this sale was to rival most Black Friday events I'd seen in the past. It was amazing to see just how many members of the community arrived early to wait in long lines for the chance to purchase native plants. I lay in wait at a register, and once the doors opened, eager customers trickled in and eventually made their way to where I was. It became clear that people were not just buying plants—they were engaging in conversations about sustainability, pollinator support, and the importance of preserving local biodiversity. I saw how this event fostered a genuine connection between attendees and the natural world, leaving so many attendees inspired to cultivate their own small patches of paradise.

Overall, the native plant sale felt like more than just a shopping experience; it felt like a celebration of nature and community. It was a joy to spend time with the numerous volunteers who worked so hard to bring this event together, and it was truly inspiring to see just how many community members were invested in supporting our native plants. •

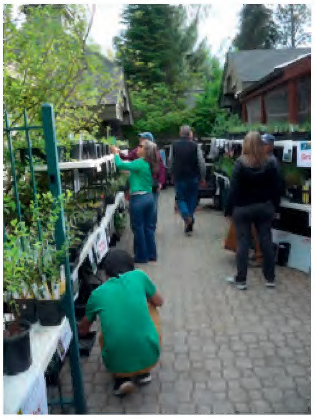
Sign at the entrance to the Center. The plant sale was held in person for the first time since 2019.

Customers peruse a wide selection of native plant species in the courtyard.

Volunteers help unload and set up plants.



Volunteer Jane Rohling at the plant counter table.



Customers finding their selections in the courtyard.

Volunteer Dave Cannamela helps move plants.

Volunteers man the credit card table. This was the first time customers had the option to use credit cards in person. And the first time the cashiers and counters got to sit inside.

Volunteers at the front table greet and help customers with questions.

Chapter News

CALYPSO CHAPTER

Public is invited to all chapter activities. All chapter activities are subject to change—watch chapter emails for updates. Contact Derek to be added to email list.

When: The next chapter meeting will be October 2 at 7:00 pm. Chapter meetings are held on the first Wednesday evenings of March, April, May, and October.

Where: Meetings will be held in the Idaho Fish and Game (IDFG) Hunter Education Building, 2885 W Kathleen Ave, Coeur d'Alene.

Contact: For more information about Calypso Chapter activities, contact Derek Antonelli: ds.ca.antonelli@gmail.com, (208) 691-1070.

Upcoming Events

June 20 to 23: Idaho Botany Foray, Malad Summit Campground near Pocatello. If interested, contact Derek for details.

July 20: Roman Nose Lakes Hike. Carpooling will start at the Hayden Walmart at 7:30 am with several stops to the north on the way to the trailhead.

August 17: Blossom Lake Plant Hike. Carpooling at 8:00 am from the Coeur d'Alene Walgreens. This lake is located near Thompson Pass on the Idaho/Montana border.

October 2: Calypso Chapter meeting, 7:00 pm. Topic TBD. Please submit topic suggestions.

LOASA CHAPTER

When: Regular meetings are held on the third Thursday of each month.

Where: TBD

Contact: For more information about Loasa Chapter activities, please contact Samuel DeGrey: sdegrey@uidaho.edu, (208) 320-0005

Upcoming Events

June 29: Field trip to Mount Harrison to see the rare Christ's paintbrush (*Castilleja christii*).

July Field Trip: Snake River Canyon. Date TBD.

August Field Trip: South Hills expedition. Date TBD.

PAHOVE CHAPTER

When: Meetings are held on the second Tuesday of each month from October–April at 7 pm. Please be sure to join us again next season starting in October 2024. Updates regarding monthly meetings, botanical news and announcements, and chapter activities will be sent to members via email. This information is also posted on the Pahove Chapter page of the INPS website: https://idahonativeplants.org/pahove/

Where: We have been holding our monthly meetings/presentations via Zoom and in person at the MK Nature Center and will continue to do so next season. This allows any member to view past presentations on our INPS YouTube channel.

Contact: For more information about Pahove Chapter activities visit the website: www.idahonativeplants.org or email Karie Pappani at pahove.chapter.president@gmail.com.

Past Events

Chapter presentations for the 2023/2024 season ended with an abundance of activities this spring including Wildflower Walks, Adopt A Plot, Boise City Nature Challenge, our Annual Native Plant Sale, an Earth Day Celebration, and our sixth annual Wildflowerr+ Show. Thank you so much to our board members who manage and coordinate these events: *Annual Native Plant Sale:* Susan Ziebarth, Vicki Henderson, Kirsten Severud*; Adopt A Plot:* Karie Pappani, Kirsten Severud, Ray Corbin*; Wildflower+ Show:* Barbara Ertter*; Earth Day Celebration:* Peggy Faith and Vicki Henderson.

And a very special thank you to all of the volunteers who made these events possible! We really appreciate your help! Thank you to all of our MEMBERS who support our chapter by attending presentations and events. By being a member, you make it all possible.

Upcoming Events

We will continue to keep you updated on botanical news and activities happening in our area over the summer. However, we do take a break from presentations from June-September. See you in the fall!

SAWABI CHAPTER

We welcome the public to our chapter's informative spring programs and warm weather plant walks.

When: All plant walks and spring programs are no longer prescheduled but will be announced via email.

Where: Spring programs are presented in Pond Student Union Building classrooms, ISU Campus, Pocatello.

Contact: For more information contact Paul Allen 208-241-5265 or pokyallen@hotmail.com

WHITE PINE CHAPTER

When: Meetings are typically held the third Thursday of the month, September through April. Current information is posted on our chapter webpage:
https://www.whitepineinps.org/WPschedule.html

Where: Meetings are held in-person in the 1912 Center Lecompte Auditorium (2nd floor) in Moscow. Video recordings of meetings will be made available on our YouTube Channel a few days after each meeting.

Contact: For more information about White Pine Chapter activities, contact us at INPS, White Pine Chapter, PO Box 8481, Moscow, ID 83843 or whitepine.chapter@gmail.com. Visit the chapter website (https://www.whitepineinps.org/)

for upcoming event information and visit our chapter YouTube channel (@whitepinechapterinps9555) for video recordings of past talks.

Past Events

The ***Annual White Pine Chapter Native Plant Sale*** was held May 16-18. The sale offered shrub reserve opportunities, online sale with in-person pickup, followed by an in-person sale. Held at the Latah County Fairgrounds Depot Building, Moscow.

Upcoming Events

Summer Field Trips: Details will be posted on our website as we know them and will be emailed to members and friends of the chapter.

WOOD RIVER CHAPTER

When: Typically we have talks in the cold months and walks in the warm ones. Non-members are welcome. Please see our website or email newsletter for information on all programs.

Where: Field trip and talk locations and details will be included with the description, posted online and emailed to members and other interested parties.

Contact: For more information about Wood River Chapter activities: email: woodriverinps@gmail.com; website: https://woodriverinps.wixsite.com/wrinps; phone: Mary (559) 696-9953. To subscribe to our newsletter, email the above address.

Upcoming Events

Late June Date TBD: Members Only Tour of Silver Creek Preserve. We'll see some special plants. The bloom cycle will determine the date, so keep an eye on our email newsletter.

July 17: Wander Up Wanderer Walk. This is a flower-filled hillside walk with views over Ketchum. Scheduled for mid-week, and perfect for visitors to the area. Meet us in Hailey to leave by 5:30 pm at the Hailey Park and Ride Lot (River and Bullion Street) or in Ketchum at the Park and Ride Lot by the YMCA, to leave at 6:00 pm.

August 3: Summit Creek Hike. This trail at the crest of Trail Creek Summit is always a treat. Wide open meadows and great views make this a local favorite. Rated medium difficulty for altitude and a possible log crossing. Bring poles. Meet at the Hailey Park and Ride Lot (River and Bullion Street) to leave at 9:00 am or at the Hemingway Memorial Parking Lot outside Sun Valley to leave at 9:30 am.

September 7: Trail Creek Beaver Ponds and Wetlands. Have you explored this area? Let's talk about beavers' role in ecosystems plus plants' adaptations for wet feet. Rated medium difficulty for possible soggy areas. Poles could be helpful. Meet at Hailey Park and Ride (River and Bullion Streets) in time to leave at 9:00 am or else at the Hemingway Memorial parking area on Sun Valley Road to leave at 9:30 am. •

Botany in the News

Idaho Matters Interview: Exploring the Plants of Craters of the Moon

By Samantha Wright, Boise State Public Radio, Photos by Lynn Kinter

What do you think of when you hear "Craters of the Moon National Monument?" Maybe a hot, rocky landscape. A gray, empty, volcanic area where nothing grows and plants can't survive. Well, it turns out a lot of plants can survive in this desert in Eastern Idaho, and Dr. Lynn Kinter knows firsthand. She's been studying plants for more than 35 years. Dr. Kinter is an adjunct graduate faculty member in the Department of Biological Sciences at Boise State University, and she talked about the Flora of the Craters of the Moon on Monday, March 25, at the Osher Lifelong Learning Institute. She joined Idaho Matters for a preview.

Listen to the interview here: https://www.boisestatepublicradio.org/show/idaho-matters/2024-03-18/craters-of-the-moon-native-plants •

Bitterroot (Lewisia rediviva) and phacelia (Phacelia hastata).

Cinder garden with limber pine behind, Craters of the Moon.

Craters of the Moon buckwheat (Eriogonum ovalifolium var. focarium).

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Idaho Native Plant Society Membership Form

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- ☐ Loasa (Twin Falls)
- ☐ Pahove (Boise)
- ☐ Sawabi (Pocatello)
- ☐ Upper Snake (Idaho Falls) - *Inactive*
- ☐ White Pine (Moscow)
- ☐ Wood River (Ketchum/Sun Valley)
- ☐ No Chapter

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- ☐ Household-Senior $25
- ☐ Sustaining $40
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Please indicate if your membership is: ☐ New ☐ Renewal
I would prefer to receive ***Sage Notes***: ☐ Print ☐ Electronic ☐ Both

Send completed form and full remittance to:
Idaho Native Plant Society, P.O. Box 9451, Boise, ID 83707

Memberships run calendar year. New memberships enrolled after June 1 include the following year. ***Renew or join online:*** https://idahonativeplants.org/membership/

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https://idahonativeplants.org/sage-notes/